



Australian Bureau of Statistics

Australian CensusAtSchool

Education Services home page > CensusAtSchool home page > Year 10 Resources

Resources



CaSQ 17B - Scatter plots: Correlation and fitting a trend line

You can download this activity as a rich text file (RTF) using the link at the bottom of the page.

How to: Get a Random Sample from CensusAtSchool

Go to the CensusAtSchool Random Sampler to download a sample.

Reference year: *(select year)* **Sample size:** *At least 30 students*

Select questions: *Year level, Concentration Game*

Location: *Select Location* **Year level:** *All*

To protect privacy there is a rule built into the sampler that the requested sample size cannot exceed 10% of the respondents for the parameters entered.



This task is designed to be completed by hand drawing a scatterplot. It can also be completed using Excel or a CAS calculator.

Task:

1. Using your CensusAtSchool random sample, enter both sets of thirty numbers as:

- a table in your workbook, or
- two columns in Excel, or

- two separate lists in your CAS calculator.

2. Create a scatter plot with your data.

- Think about which set of data is the independent and dependent variable
- Plan your axes to include the highest and lowest values in the data
- Include a title that includes the variable names.

3. Look at your graph. Can you see any trend or pattern to the data? Complete this sentence:

As school year level _____, concentration time _____.

4. Examine your scatter plot and circle the appropriate description:

Direction	Form	Strength
Positive Negative	Linear Non-linear	Strong Moderate Weak

5. Fit a trend line (sometimes called the line of best fit) to the data and complete the following sentence:

Each time the year level increases by 1 (year), the concentration time _____ by ____ (seconds).

6. Estimate the value of the correlation coefficient (r) and explain what this indicates about the strength of the relationship.



Extension:

7. Use the Random Sampler to choose your own data to create a scatterplot.

8. Use linear regression to calculate the trend line and the correlation coefficient.

9. Explain what this correlation coefficient indicates about the strength of the relationship.

Download the full activity:



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